

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 April 2004 (08.04.2004)

PCT

(10) International Publication Number  
**WO 2004/029163 A1**

- (51) International Patent Classification<sup>7</sup>: **C09D 11/00**, B41M 3/14, G07D 7/12
- (74) Agents: **HEPP, Dieter et al.**; Hepp Wenger Ryffel AG, Friedtalweg 5, CH-9500 Wil (CH).
- (21) International Application Number:  
PCT/EP2003/009848
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date:  
5 September 2003 (05.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (30) Priority Data:  
02021179.3 24 September 2002 (24.09.2002) EP
- (71) Applicant (*for all designated States except US*): SICPA HOLDING S.A. [CH/CH]; Avenue de Florissant 41, CH-1008 Prilly (CH).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): DEGOTT, Pierre [FR/CH]; Chemin des Falaises 15, CH-1023 Crissier (CH). DESPLAND, Claude-Alain [CH/CH]; Avenue Gratta-Paille 7, CH-1018 Lausanne (CH). MÜLLER, Edgar [CH/CH]; Rue P.-A. de Faucigny, CH-1700 Fribourg (CH).
- Published:**  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: METHOD AND INK SETS FOR MARKING AND AUTHENTICATING ARTICLES

(57) Abstract: The invention discloses a method for marking and authenticating a security article, such as a banknote, a document, a ticket, a foil, a thread, a label, a card, or a commercial good, so as to provide for an easy authentication of said article by a machine, such as a currency acceptor, a ticket validator, or a hand-held authentication device. According to the disclosed method, the security article carries a marking in the form of a user-defined design, wherein said marking comprises dyes or pigments belonging to an extended, or hyperchromic color space which is not reproducible by commercially available, 4-color desktop reproduction equipment. The authentication of said marking includes the mathematical transformation of the crude spectral information to statistically independent hyper-color coordinates, and the comparison of selected hyper-color coordinates with corresponding reference values.

WO 2004/029163 A1